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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/619,112	07/14/2003	Kun-Hyung Lee	SAM-0396	5813
7590	10/19/2005		<div>EXAMINER</div> <div>ADAMS, GREGORY W</div>	
Steven M. Mills MILLS & ONELLO LLP Suite 605 Eleven Beacon Street Boston, MA 02108			<div>ART UNIT</div> <div>3652</div>	<div>PAPER NUMBER</div>
DATE MAILED: 10/19/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/619,112	LEE ET AL.	
	Examiner	Art Unit	
	Gregory W. Adams	3652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 08 August 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) 6, 14, 22 and 34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-13, 15-21, 23-33 & 35-48 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>8/8/2005</u> .  | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1, 17 & 41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. With respect to claim 1, line 11, it is unclear whether applicant is claiming an apparatus for processing a wafer or a method for processing a wafer that includes maintaining a substantially laminar flow. See also claim 17, line 17, claim 41, line 7.

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-5, 8-13, 16-21, 24-33, 36-42 & 45-46 rejected under 35 U.S.C. 102(e) as being anticipated by Tokunaga (US 2003/0031537) published on Feb. 13, 2003 (now patent US 6,817,822).

3. With respect to claim 1, Tokunaga '537 discloses an apparatus 200 comprising a flow chamber 40 having a first gas inlet 42 for a first gas (c. 4, Ins. 34-36), wafer inlet 101, wafer outlet 50 coupled to a wafer processing apparatus, robotic apparatus 41, second gas inlet 47 for a second gas 47, and a wafer storage device 100. It is noted that Tokunaga discloses maintaining a substantially laminar flow via housing 27, which retains a gas within a flow chamber thereby maintaining a gas laminar flow. Further, Tokunaga '537 discloses a first gas laminar flow to provide a cleaning effect.

4. With respect to claim 2, Tokunaga '537 discloses first gas comprises clean dry air. Col. 4, Ins. 34-36.

5. With respect to claim 3, Tokunaga '537 discloses a second gas 47 comprises inert gas, stable gas, nitrogen, argon, helium and clean dry air DNA. Col. 4, Ins. 56-59.

6. With respect to claim 4, Tokunaga '537 discloses a wafer storage device is a FOUP. Col. 4, Ins. 48-57.

7. With respect to claim 5, Tokunaga '537 discloses an apparatus is an equipment front-end module. Col. 4, Ins. 48-57.

8. With respect to claim 8, Tokunaga '537 discloses a robotic element 41 is a wafer handler.

9. With respect to claim 9, Tokunaga '537 discloses method for processing a wafer (col. 5, In. 54 - col. 5, In. 36) comprising providing a flow chamber 40 having a first gas inlet 42 for allowing a first gas (col. 4, Ins. 34-36), providing a wafer inlet 101, providing a wafer outlet 50, providing a robotic apparatus, and allowing a second gas 47 to enter a flow chamber 40. It is noted that Tokunaga discloses maintaining a substantially

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laminar flow via housing 27, which retains a gas within a flow chamber thereby maintaining a gas laminar flow. Further, Tokunaga '537 discloses a first gas laminar flow to provide a cleaning effect.

10. With respect to claim 10, Tokunaga '537 discloses first gas comprises clean dry air. Col. 4, Ins. 34-36.

11. With respect to claim 11, Tokunaga '537 discloses a second gas 47 comprises inert gas, stable gas, nitrogen, argon, helium and clean dry air DNA. Col. 4, Ins. 56-59.

12. With respect to claim 12, Tokunaga '537 discloses a wafer storage device is a FOUP. Col. 4, Ins. 48-57.

13. With respect to claim 13, Tokunaga '537 discloses an apparatus is an equipment front-end module. Col. 4, Ins. 48-57.

14. With respect to claim 16, Tokunaga '537 discloses a robotic element 41 is a wafer handler.

15. With respect to claim 17, Tokunaga '537 discloses an apparatus for manufacturing a semiconductor device comprising a wafer storage device 100, a wafer processing apparatus (col. 4, Ins. 25-31), a wafer transfer apparatus 200 comprising a flow chamber 40 having a first gas inlet 42 for allowing a first gas (Col. 4, Ins. 34-36), wafer inlet 101, wafer outlet 50, robotic apparatus 41, and a second gas inlet 47 for allowing a second gas. It is noted that Tokunaga discloses maintaining a substantially laminar flow via housing 27, which retains a gas within a flow chamber thereby maintaining a gas laminar flow. Further, Tokunaga '537 discloses a first gas laminar flow to provide a cleaning effect.

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16. With respect to claim 18, Tokunaga '537 discloses first gas comprises clean dry air has laminar flow. Col. 4, Ins. 36-38.

17. With respect to claim 19, Tokunaga '537 discloses a second gas 47 comprises inert gas, stable gas, nitrogen, argon, helium and clean dry air DNA. Col. 4, Ins. 56-59.

18. With respect to claim 20, Tokunaga '537 discloses a wafer storage device is a FOUP. Col. 4, Ins. 48-57.

19. With respect to claim 21, Tokunaga '537 discloses an apparatus is an equipment front-end module. Col. 4, Ins. 48-57.

20. With respect to claim 24, Tokunaga '537 discloses a robotic element 41 is a wafer handler.

21. With respect to claims 25-28, Tokunaga '537 discloses a wafer processing apparatus is a chemical vapor deposition apparatus, furnace, dry etch apparatus, or a metrology apparatus. Col. 4, Ins. 25-31.

22. With respect to claim 29, Tokunaga '537 discloses method for processing a wafer (col. 5, In. 54 - col. 5, In. 36) comprising storing a wafer in a wafer storage device 100, performing a manufacturing process, transferring a wafer between a wafer storage device 100 and a wafer processing apparatus, using a wafer transfer apparatus 200, a transferring comprising providing a flow chamber 40 having a first gas inlet 42 for a first gas, coupling a wafer inlet 101 to a wafer storage device 100, coupling a wafer outlet 50 to a wafer processing apparatus moving a wafer from a wafer inlet using a robotic apparatus 41, allowing a second gas 47 to enter a flow chamber 40. It is noted that Tokunaga discloses maintaining a substantially laminar flow via housing 27, which

retains a gas within a flow chamber thereby maintaining a gas laminar flow. Further, Tokunaga '537 discloses a first gas laminar flow to provide a cleaning effect.

23. With respect to claim 30, Tokunaga '537 discloses first gas comprises clean dry air. Col. 4, Ins. 34-36.

24. With respect to claim 31, Tokunaga '537 discloses a second gas 47 comprises inert gas, stable gas, nitrogen, argon, helium and clean dry air DNA. Col. 4, Ins. 56-59.

25. With respect to claim 32, Tokunaga '537 discloses a wafer storage device is a FOUP. Col. 4, Ins. 48-57.

26. With respect to claim 33, Tokunaga '537 discloses an apparatus is an equipment front-end module. Col. 4, Ins. 48-57.

27. With respect to claim 36, Tokunaga '537 discloses a robotic element 41 is a wafer handler.

28. With respect to claims 37-40, Tokunaga '537 discloses a wafer processing apparatus is a chemical vapor deposition apparatus, furnace, dry etch apparatus, or a metrology apparatus. Col. 4, Ins. 25-31.

29. With respect to claim 41, Tokunaga '537 discloses an equipment front-end module 40 comprising a first gas inlet 42 for allowing a first gas, and a second gas inlet 47 for allowing a second gas. Col. 4, Ins. 34-36. It is noted that Tokunaga discloses maintaining a substantially laminar flow via housing 27, which retains a gas within a flow chamber thereby maintaining a gas laminar flow. Further, Tokunaga '537 discloses a first gas laminar flow to provide a cleaning effect.

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30. With respect to claim 42, Tokunaga '537 discloses a wafer storage device is a FOUP. Col. 4, Ins. 48-57.

31. With respect to claim 45, Tokunaga '537 discloses method for processing a wafer (col. 5, ln. 54 - col. 5, ln. 36) comprising allowing a first gas and second gas to enter. It is noted that Tokunaga discloses maintaining a substantially laminar flow via housing 27, which retains a gas within a flow chamber thereby maintaining a gas laminar flow.

32. With respect to claim 46, Tokunaga '537 discloses a wafer storage device is a FOUP. Col. 4, Ins. 48-57. Further, Tokunaga '537 discloses a first gas laminar flow to provide a cleaning effect.

***Claim Rejections - 35 USC § 103***

33. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

34. Claims 7, 23 & 43-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tokunaga (US 2003/0031537) in view of Tokunaga (US 2003/0009904) (embodiment 1) (published on Jan. 16, 2003.) Tokunaga '537 discloses a second gas inlet 47 in a flow chamber for an inert gas such as nitrogen to enter a flow chamber, but does not disclose a third gas inlet for allowing a third gas to enter a flow chamber. Tokunaga '904 discloses a second gas inlet 3, 5 and a third gas inlet 3, 5. Para. [0062]. Tokunaga '904 teaches second and third gas inlets for providing an inert gas such as Nitrogen into a wafer storage device 200 for quick wafer storage environment purge.



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Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Tokunaga '537 to include a second and third gas inlet, as per the teachings of Tokunaga '904, for providing an inert gas such as Nitrogen into a wafer storage device 200 for quick wafer storage environment purge.

35. Claims 15, 35 & 47-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tokunaga (US 2003/0031537) in view of Tokunaga (US 2003/0009904) (embodiment 1) (published on Jan. 16, 2003.) Tokunaga '537 discloses a method for processing a wafer (col. 5, ln. 54 thru col. 5, ln. 36) including a second gas inlet 47 in a flow chamber for allowing a second gas, i.e. inert gas such as nitrogen, to enter a flow chamber 40, but does not disclose a third gas inlet for allowing a third gas to enter a flow chamber. Tokunaga '904 discloses a second gas inlet 3, 5 and a third gas inlet 3, 5. Para. [0062]. Tokunaga '904 teaches second and third gas inlets for providing an inert gas such as Nitrogen into a wafer storage device 200 for quick wafer storage environment purge. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Tokunaga '537 to include a second and third gas inlet, as per the teachings of Tokunaga '904, for providing an inert gas such as Nitrogen into a wafer storage device 200 for quick wafer storage environment purge.

### ***Response to Arguments***

36. Applicant's arguments filed August 8, 2005 have been fully considered but they are not persuasive.

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With respect to the rejected claims, in response to applicant's argument that the cited prior art does not maintain a laminar flow, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Applicant is respectfully reminded that to be entitled to patentable weight, structure must be positively recited.

However, assuming applicant had positively recited the appropriate structure the cited prior art maintains a substantially laminar flow by virtue of maintaining a gas internal to a flow chamber. With respect to Tokunaga '537 this effect is accomplished via housing 27. Further, Tokunaga '537 discloses a laminar flow in a flow chamber where two gases commingle such that a desired cleaning effect is achieved. Col. 4, Ins. 10-50.

### ***Conclusion***

37. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory W. Adams whose telephone number is (571) 272-8101. The examiner can normally be reached on M-Th, 8:30-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eileen Lillis can be reached on (571) 272-6928. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GWA

  
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